REMARKS/ARGUMENTS

Favorable reconsideration of this application in light of the present amendment and following discussion is respectfully requested.

Claims 1-30 are pending. Claims 3-7, 12, 13, 21, and 22 are withdrawn by the outstanding Office Action. Claims 1, 3-7, 10, 12, 13, 16, 18, 22-24, 26, and 27 are amended by the present amendment. No new matter is added.

In the outstanding Office Action, Claims 1, 2, 8-11, 14-20, and 23-30 were rejected under 35 U.S.C. §102(b) as anticipated by Lessen (U.S. Patent No. 3,881,669). Claims 18, 23, 24, 26, and 27 were rejected under 35 U.S.C. §112, second paragraph.

With regard to the rejection of Claims 1, 10, and 16 under 35 U.S.C. §102(b) as anticipated by Lessen, that rejection is respectfully traversed.

Amended Claim 1 recites an aircraft comprising:

> a wing forming a vortex at a rear portion thereof by a merging of a first co-rotating eddy with a second co-rotating eddy; and
>
> a perturbation device disposed adjacent an area of creation of the first co-rotating eddy, the perturbation device being configured to generate a periodic perturbation having a wavelength configured to excite at least one instability mode of the first co-rotating eddy to accelerate a destruction of the vortex.

In contrast, Lessen describes an apparatus for eliminating or substantially attenuating the vortices which typically trail the airfoils of heavier-than-air aircraft in flight. However, Lessen fails to teach "the perturbation device being configured to generate a ***periodic perturbation having a wavelength configured to excite at least one instability mode of the first eddy***," as recited in independent Claim 1 (a similar feature is also recited in independent Claims 10 and 16).

Instead, Lessen describes an apparatus wherein "the air stream discharged from nozzle 30 is discharged at a flow rate of such a magnitude that it has a magnitude of

momentum flux, relative to the free air stream, which is sufficient to render the trailing vortex with which it combines hydrodynamically unstable."[1] Lessen further states "[t]he flow rate of air through the nozzle was 0.38 pounds per second."[2] Thus, Lessen simply describes a perturbation of an airflow at a certain prescribed flow rate, which airflow is neither periodic nor characterized in any way by a wavelength, much less by "a wavelength configured to excite at least one internal instability mode."

The outstanding Office Action stated at page 3, lines 3-11 that "Applicant has argued what the device does, and how it performs, however does not clearly point out the structural differences between the claims and the prior art." The Office Action continues "A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim."

However, it is respectfully submitted that Claim 1 does not recite any "intended use," but instead includes structural features recited functionally, in accordance with well settled case law.[3] For example, while features of an apparatus may be recited either structurally ***or functionally***, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997) (Emphasis added.) See also MPEP §2114.

In the present case, Claim 1 recites an aircraft that includes a structure "configured to generate a periodic perturbation having a wavelength configured to excite at least one instability mode of the first eddy." As discussed above, Lessen describes no such structure. As the device described by Lessen would need to be modified to include structure

[1]See Lessen, column 5, lines 63-68.
[2]See Lessen, column 7, lines 28-29.
[3]It is noted that Claim 1 is amended to replace the recitation of "capable of exciting" with "configured to excite."

"configured to generate a periodic perturbation having a wavelength configured to excite at least one instability mode of the first eddy" as recited in Claim 1, Lessen does not teach "a perturbation device" as recited in Claims 1, 10, or 16.

The statements in the outstanding Office Action that "Lessen is capable of fulfilling the functional language the applicant has claimed" appear to be asserting that Lessen inherently describes the claimed structure.[4] However, no evidence supporting such an assertion has been provided. With regard to inherency, the fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted). See also MPEP §2112. The outstanding Office Action has not provided evidence that the device described by Lessen ***necessarily*** includes a perturbation device as recited in Claims 1, 10, or 16. Consequently, Claims 1, 10, and 16 (and Claims 2-9, 11-15, and 17-30 dependent therefrom) are not inherently or explicitly anticipated by Lessen and are patentable thereover.

With regard to the rejection of Claims 18, 23, 24, 26, and 27 were rejected under 35 U.S.C. §112, second paragraph, that rejection is respectfully traversed. Claims 23 and 26 are amended to recite "the fluid jet emits a fluid." Claims 18 and 24 are amended to recite "the periodic perturbation is a Benard-von Karman instability." Finally, Claim 27 is amended to recite "the periodic perturbations are Benard-von Karman instabilities." Accordingly,

[4]See, e.g. the outstanding Office Action at page 3, lines 14-15 (emphasis in original).

Claims 18, 23, 24, 26, and 27 are believed to be in compliance with all requirements under 35 U.S.C. §112, second paragraph.

Finally, withdrawn Claims 3-7, 21, and 22 depend from generic Claim 1, which is believed to be patentable as discussed above. Accordingly, the rejoinder and allowance of Claims 3-7, 21, and 22 is respectfully requested. Withdrawn Claims 12 and 13 depend from generic Claim 10 which is also believed to be patentable as discussed above. Accordingly, the rejoinder and allowance of Claims 12 and 13 is also respectfully requested.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-30 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicant's undersigned representative at the below listed telephone number.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Edward Tracy

Philippe J.C. Signore, Ph.D.
Attorney of Record
Registration No. 43,922

Edward Tracy
Registration No. 47,998

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 06/04)

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